CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory
An ISO 9001:2008 Certified Company
NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Shape.T/2018-19 23.04.2018

TEST REPORT ON FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at pipeline attached roads and near Cavery Pump House in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/219/2017-18 Dated:07.02.2018
* Sample ID	:	Hot Mix Plant, Bangalore
Technical Reference	:	IS : 2386(Part -1)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	23.04.2018

Sl.No.	Description	Result
1	Flakiness Index	12.06%
2	Elongation Index	13.47%
3	Combined Flakiness & Elongation Index	25.53%

*Information is furnished by the Customer/Representative.

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Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

Note:

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⇒The results indicated above are based on the tests carried out on the samples received in the

⇒Any Query regarding the report must be reported within 30 days from the date of testing.

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Stripping/2018-19 25.04.2018

TEST REPORT ON STRIPPING VALUE OF ROAD AGGREGATE (STATIC IMMERSION TEST)

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements of Asphalting at pipeline attached roads and near Cavery Pump House in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/219/2017-18 Dated:07.02.2018
Technical reference	:	IS: 6241
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	25.04.2018

Type of binder : 60/70
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

*Information is furnished by the Customer/Representative.

Comments:

→ Minimum allowable Aggregate retained coating for Bituminous Macadam is 95%

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Job No: CTCE/BBMP/KRIDL/W.No.13/BM/Sp_Wa/2018-19

25.04.2018

TEST REEPORT ON SPECIFIC GRAVITY AND WATER ABSORPTION

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of Work	:	Improvements of Asphalting at pipeline attached roads and near Cavery Pump House in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/219/2017-18 Dated:07.02.2018
Technical reference	:	IS : 2386(Part -3)-1963 (RA-2011)
* Type of Mix	:	Bituminous Macadam
Date of Testing	:	25.04.2018

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 2	
1	Weight of aggregate suspended in water with the basket	W_1 g	2010	2012	2014	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1260	1262	1264	
4	Weight of saturated surface dry aggregate in air	W_3 g	2024	2026	2028	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	764	764	764	
6	Weight of oven dried aggregate	W_4 g	2014	2016	2018	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.636	2.639	2.641	2.639
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.671	2.674	2.676	2.674
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.50%	0.50%	0.50%

*Information is furnished by the Customer/Representative.

Comments:

⇒Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Bitumen/2018-19 25.04.2018

TEST REPORT ON BITUMEN CONTENT DETERMINATION OF BITUMINOUS MACADAM MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements of Asphalting at pipeline attached roads and near Cavery Pump House in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/219/2017-18 Dated:07.02.2018
* Sample ID	:	Road at pipeline attached roads, Ward No.13,
Technical Reference	:	IRC:SP:11-1984
Date of Testing	:	25.04.2018

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	482.5	481
3. Weight of Asphalt and Mineral matter Extracted, g		-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	17.5	19.00
7. Bitumen content in %	3.50	3.80
8. Average	**3.65**	

*Information is furnished by the Customer/Representative.

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Job No.: CTCE/BBMP/KRIDL/W.No.13/BM/Bitumen/2018-19 25.04.2018

TEST REPORT ON GRADATION OF BITUMINOUS MACADAM MIX

* Customer	:	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP Bangalore.
* Agency	:	**Technical Manager (West),** KRIDL, Bangalore.
* Name of work	:	Improvements of Asphalting at pipeline attached roads and near Cavery Pump House in Mallasandra Ward No.13, Shettyhalli, Sub Division, BBMP, Bangalore.
* Reference	:	BBMP/EE/DD/WO/219/2017-18 Dated:07.02.2018
* Sample ID	:	Road at pipeline attached roads, Ward No.13,
Technical Reference	:	IS:2386 and IRC:SP:11-1984
Date of Testing	:	25.04.2018

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0.00	100	100
19	35.24	7.30	7.30	92.70	90-100
13.2	80.12	16.61	23.91	76.09	56-88
4.75	255	52.85	76.76	23.24	16-36
2.36	55.26	11.45	88.21	11.79	4-19
0.3	25.31	5.25	93.46	6.54	2-10
0.075	8.62	1.79	95.24	4.76	0-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-04 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
26.5	0	0	0.00	100	100
19	30.51	6.34	6.34	93.66	90-100
13.2	84.26	17.52	23.86	76.14	56-88
4.75	265	55.09	78.95	21.05	16-36
2.36	50.14	10.42	89.38	10.62	4-19
0.3	32.65	6.79	96.17	3.83	2-10
0.075	7.25	1.51	97.67	2.33	0-8

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